

HOW I DO IT

Wide Margin Resection and Brachytherapy for Post-Irradiation Breast Cancer Recurrence

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INTRODUCTION

The incidence of locoregional recurrence after mastectomy was about 23% on long-term follow up [1]. Post-mastectomy locoregional recurrence should be treated by external irradiation after maximal tumour debulking. Complete response ranges from 40% to 97% (median 69%) [2]. Long-term control of the tumour had also been reported but the control rate was lower in patients with multiple nodules [3]. In patients who have had previous irradiation as adjuvant therapy, the management of the recurrent disease poses a challenging clinical problem. External irradiation given the second time will increase the likelihood of complications such as radionecrosis of the rib cage and persistent ulcers that are difficult to treat. Salvage surgery alone for recurrent breast cancer in patients who have had previous irradiation is possible [4]. However, this is often a major surgery requiring resection of the underlying rib and myocutaneous flap reconstruction. Moreover, minor and major complications occur in 40% and 60% of patients, respectively. We attempt to solve this problem by combining brachytherapy with myocutaneous flap coverage. Brachytherapy can deliver a high dose of irradiation locally, whereas the myocutaneous flap can provide a good coverage of the tumour bed after wide excision.

SURGICAL TECHNIQUE

The tumour bearing area was excised with a 3-cm margin. An ipsilateral latissimus dorsi flap was designed and raised to cover the defect created. Before putting the flap in place, the size of the tumour bed was measured for optimal placement of treatment catheters, to ensure adequate coverage by the radioisotope implant of the original tumour plus a 2-cm margin in all directions. The entry and exit points of the planned catheter positions were carefully marked and the spacing between these

catheters was set at 1 cm. Metallic guides were inserted through these points. Flexible nylon catheters were subsequently threaded through the guides which were then removed. Finally the catheters were secured into place by suturing to the skin the plastic buttons attached at one end of the catheters (Fig. 1). The prepared latissimus dorsi flap was then placed onto the tumour bed on top of the treatment catheters.

Using dummy sources, orthogonal radiographs were obtained to define the implanted volume for treatment planning. Based on these films, dosimetry was computer generated. The actual treatment was carried out 7 days after the operation to allow time for the wound to heal. A dose of 6.5 Gy in five fractions was given to the reference isodose surface at 0.5 cm from the plane of the implant using a micro-Selectron High Dose Rate machine with stepping Iridium 192 source. After completion of treatment, all patients were given systemic chemotherapy.

This treatment was performed for three women. The mean size of the recurrent disease was 2.6 cm (range, 2–3 cm). All the lesions extended into the pectoralis major muscle but they could be removed en bloc without the need to resect the rib. All patients had close involvement of the deep resection margin by tumour. No patient developed a second locoregional recurrence. One patient died two months after treatment from lung and bony metastases. Another patient developed persistent cough and impaired liver function tests 2 years after treatment. Bone scan and computed tomography scan of the thorax

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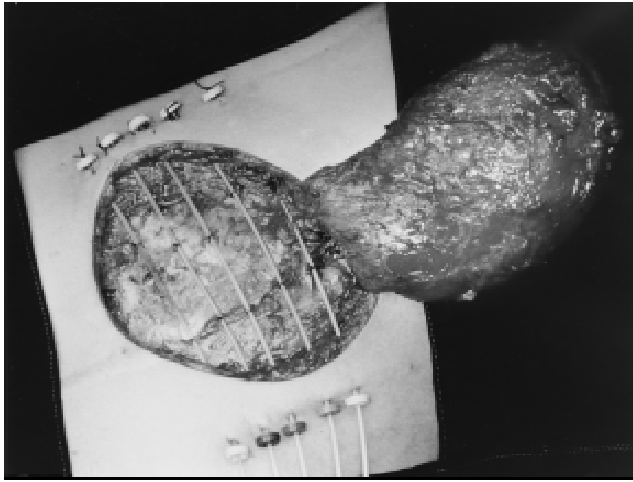


Fig. 1. Treatment catheters placed in the tumor bed for postoperative insertion of Iridium 192 seeds and a latissimus dorsi flap in juxtaposition ready to be sutured into place.

revealed multiple metastases. She was given further chemotherapy and there was good clinical response. The other patient remained symptom free after treatment. The mean disease-free survival for the whole group of patients was 14 months and the mean overall survival was 18 months.

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